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ADVANCE INFORMATION ON THE SUPPLY OF PULPWOOD IN SURVEY UNIT #1 GEORGIA

By

SOUTHERN FOREST SURVEY STAFF

I. F. Eldredge

Regional Director

* - This is an advance release of Forest Survey data that will later be published in complete reports. This information is subject to such correction or amplification as may be found necessary as computations proceed.

[1] - The first three releases of this series have been issued as Occasional Papers 31, 34 and 36 of the Southern Forest Experiment Station.

The white paper used in this publication was made of southern pine bleached sulphite pulp made experimentally at the Pulp and paper Laboratory of the Industrial Committee of Savannah, Inc. The commercial kraft paper covers were made from pulp of southern pine at Bogalusa, La.

ADVANCE INFORMATION ON THE SUPPLY OF PULPWOOD

IN SURVEY UNIT #1

GEORGIA

By

The Southern Forest Survey Staff

I. F. Eldredge

Regional Survey Director

The following information concerning the amount of pulpwood in Survey Unit #1, Georgia, is given in advance of the publication of a statistical report which will give not only the inventory of pulpwood, but in addition, full information concerning the supply, the growth, and the character of the timber suitable for lumber, naval stores, poles, piling and domestic uses. The data given in this advance release are preliminary, and are subject to correction and modification when final computations are completed. The figures of area used in this release are approximate only, and very likely will require correction as further information becomes available. It is believed, however, that the changes in estimates of pulpwood that may be necessitated by corrections in area figures will neither be extensive nor important.

The estimates given here are based on data gathered in the period from December 1933 to July 1934 by the Forest Survey, an activity of the Southern Forest Experiment Station of the Branch of Research, U. S. Forest Service. Measurement was made of the timber stand on the 9,066 quarter-acre forest-plots encountered in a total of 12,428 plots, both forest and non-forest. Sample plots were taken at intervals of 660 feet on parallel compass lines run 10 miles apart in an east and west direction across the 35 counties comprising the survey unit. The location of the unit may be seen on the map on page 10 . The gross area surveyed, not including the Okefenokee Swamp and a strip along the coast which contains coastal islands and salt marshes, is approximately 9,643,400 acres. Table 1 shows the distribution of this area by class of land use.

Table 1. - Distribution of land area[1] by class of land use, Survey Unit #1, Georgia

Land use classes	Area in acres	Percent of non-forest area	Percent of total area
Forest land	6,976,200		72.3
Nonforest land:			
Agricultural land:			
In cultivation:			
Old crop land	2,020,700	75.8	
New crop land	8,500	.3	
Out of cultivation:			
Idle	133,900	5.0	
Abandoned	122,400	4.6	
Pasture:			
Improved	19,200	.7	
Other areas:			
Marsh	168,500	6.3	
Waterways	64,600	2.4	
Towns and villages	49,200	1.9	
Roads, railroads, etc.	80,200	3.0	
Total nonforest land	2,667,200	100.0	27.7
Total forest and non-forest land	9,643,400		100.0

[1] Does not include the Okefenokee Swamp and a strip along the coast which contains coastal islands and salt marshes.

The Forest Area

As shown in table 1 the forest in Georgia Survey Unit #1 covers about 72 percent of the gross area. There are three groups of forest types of significance in pulpwood production in this unit. The first group consists of the turpentine pines, longleaf and slash, in their varying mixtures with each other and with other species. The nonturpentine pine group consists of varying mixtures of loblolly, shortleaf, pond, sand and spruce pines. Some hardwoods are found in both of these forest type groups. The third group is composed of hardwoods either pure or mixed to a very limited extent with pines. Table 2 shows the forest area classified by forest conditions and by these forest type groups. In round figures, the turpentine-pine forest types cover 72 percent, the nonturpentine-pine forest types 14 percent and the hardwood forest types 14 percent of the forested area. It will be noted that 30 percent of the forest is uncut second-growth of saw-log size, and 34 percent is uncut second-growth under saw-log size. The minimum tree diameter for pine trees of saw-log size is 9 inches, and for hardwoods 13 inches.

Table 2. - Forest area by forest conditions and forest type groups, Survey Unit #1, Georgia

Forest conditions	Forest type groups			Total	Percent of total forest area
	Longleaf and slash pine predominating	Loblolly and other nonturpentine pine predominating	Hardwood predominating		
	----------Acres----------				
Old-growth uncut	104,700	81,500	228,600	414,800	5.9
Old-growth partly-cut	415,500	97,000	173,900	686,400	9.8
Second-growth saw-log size uncut	1,445,000	371,700	233,200	2,049,900	29.4
Second-growth saw-log size partly-cut	190,100	110,000	37,700	337,800	4.8
Second-growth under saw-log size uncut	1,914,500	209,300	279,300	2,403,100	34.5
Second-growth under saw-log size partly-cut	78,400	14,700	17,700	110,800	1.6
Clear-cut[1]	442,600	7,700	7,600	457,900	6.6
Reproduction	413,100	60,000	42,400	515,500	7.4
Total	5,003,900	951,900	1,020,400	6,976,200	
Percent of total forest area	71.7	13.7	14.6		100.0

[1] The areas shown in the clear-cut condition include a relatively small area of fire-killed condition.

Volume Estimate

To understand the following tables of cordwood volume, a brief explanation of terms is necessary.

There are six species groups, of which the first five are considered suitable for pulpwood:

1. - Round turpentine-pines are longleaf and slash pine trees that have never been worked for naval stores, that is, no cups have been hung or faces made for the production of turpentine and rosin.

2. - Working and resting turpentine-pines are longleaf and slash pine trees that either are being worked for naval stores at the present time, or are in a temporary period of rest between working operations..

3. - Worked-out turpentine-pines are longleaf and slash pine trees on which as many cups or faces have been placed as the trees will stand; these trees have served their purpose in the production of naval stores, and are ready for the ax.

4. - The nonturpentine pines, loblolly, shortleaf, pond, sand and scrub pines, are not used in the production of naval stores. They, of course, have no cups or faces.

5. - The pulping hardwoods, which can be used in the manufacture of paper, include the gums, the maples, the bays, magnolia, cottonwood, poplar, etc.

6. - The nonpulping hardwoods include species that are not generally considered of value for the production of paper, such as oak, hickory, ash, cypress, hackberry and sycamore.

In estimating the volume of pulpwood only live timber of pulping species was considered. (All sound trees five inches and over in diameter at breast height were taken, but no wood under 4 inches in diameter at the small end outside of bark was included in the estimate.) No limb wood was included. (A deduction was made for woods cull, that is, that portion of the tree that would be left in the woods on account of rot, crook, bad knots, or other defects.) Volumes of the entire butt sections (approximately 10 feet) of working, resting, and worked-out turpentine-trees were omitted from the estimate. Later information may show that a substantial percentage of these butt sections can be used for pulpwood. In that event, the totals given here will be proportionately increased in later reports.

Table 3 gives by forest type groups and species groups the total amount of cordwood both pulping and nonpulping in stands in Georgia Unit #1. The cord used is the standard cord, 4 by 4 by 8 feet, measured with bark on.

Table 3. - Estimate of cordwood, by forest type groups and species groups, Survey Unit #1, Georgia

Species groups	Forest type groups			
	Longleaf and slash pine predominating	Loblolly and other nonturpentine pine predominating	Hardwood predominating	Total
	Thousands of cords			
Round turpentine-pine (Longleaf and slash)	8,446	310	86	8,842
Working and resting turpentine-pine (Longleaf and slash)	9,585	147	35	9,767
Worked-out turpentine-pine (Longleaf and slash)	2,364	27	13	2,404
Nonturpentine pine (Loblolly, shortleaf, pond, sand and scrub)	1,888	6,615	187	8,690
Pulping hardwood (Gum, maple, bay, magnolia, etc.)	3,544	2,178	9,541	15,263
Nonpulping hardwood (Cypress, oak, hickory, ash, etc.)	2,701	1,255	5,448	9,404
Total	28,528	10,532	15,310	54,370

Table 3 indicates that there are 29,703,000 cords of pulpwood of the pine species, and 15,263,000 cords in the pulping hardwoods, or a total of 44,966,000 cords of pulpwood.

Survey Unit #1, Georgia, is in the heart of the naval-stores belt. It produces nearly 50 percent of this country's annual output of turpentine and rosin. The greater part of the pine forest is owned or leased by naval-stores operators. It is reasonable to assume that the naval-stores industry will continue to lay first

claim to the greater part of the longleaf and slash pine timber stands, and will use these stands for turpentine and rosin before they become available for pulpwood. Taking this into account, Table 4 has been prepared to show the volume of pulpwood available at the present time in species not used in naval-stores production and in trees that have already been fully exploited by naval-stores operators. The amount of pulpwood available in worked-out turpentine-pines increases each year. This is due to the fact that each year the turpentine industry abandons the working trees in its older operations, transferring activity to round timber. These worked-out trees are not utilized for saw timber or other products as rapidly as they are thrown out of navel-stores production.

Table 4. - Pulpwood estimate not including round, working or resting turpentine-pines. This estimate includes worked-out turpentine-pine, all nonturpentine-pine and pulping-hardwood species. Survey Unit #1, Georgia

Species groups	Forest type groups			
	Longleaf and slash pine predominating	Loblolly and other nonturpentine pine predominating	Hardwood predominating	Total
	Thousands of cords			
Worked-out turpentine-pine (Longleaf and slash)	2,364	27	13	2,404
Nonturpentine pine (Loblolly, shortleaf, pond, sand and scrub)	1,888	6,615	187	8,690
Subtotal (all pine species)	4,252	6,642	200	11,094
Pulping hardwoods (Gum, maple, bay, magnolia, etc.)	3,544	2,178	9,541	15,263
Total	7,796	8,820	9,741	26,357

In table 5, the total estimate of cordwood, not including that in round and in working and resting turpentine-pines, is shown by tree diameter classes. The two-inch diameter classes used are designated in the table by the midpoint of each class; the 6-inch class includes trees from 5.0 to 6.9 inches, the 8-inch class from 7.0 to 8.9. It is to be noted that of the 26,357,000 cords of available pulpwoood, 13,114,000 cords are in trees in the 6, 8, 10 and 12-inch classes. In these diameter classes, little competition is to be expected from the lumber industry.

Table 5 - Size classification of cordwood, both pulping and non-pulping, not including round, working and resting turpentine-pines, Survey Unit #1, Georgia

Species groups	Diameter classes	Forest type groups			
		Longleaf and slash pine predominating	Loblolly and other nonturpentine pine predominating	Hardwood predominating	Total
		Thousands of cords			
Worked-out turpentine-pine (Longleaf and slash)	6"- 8" [1]	268	2	1	271
	10"-12"	1,237	14	5	1,256
	14"-18"	724	8	2	734
	20" & over	135	3	5	143
	Subtotal	2,364	27	13	2,404
Nonturpentine pine (Loblolly, shortleaf, pond, sand and scrub)	6"- 8" [2]	354	827	29	1,210
	10"-12"	570	1,774	52	2,396
	14"-18"	678	2,653	64	3,395
	20" & over	286	1,361	42	1,689
	Subtotal	1,888	6,615	187	8,690
Pulping hardwood (Gum, maple, bay, magnolia, etc.)	6"- 8" [2]	1,416	649	1,709	3,774
	10"-12"	1,146	642	2,419	4,207
	14"-18"	740	659	3,017	4,416
	20" & over	242	228	2,396	2,866
	Subtotal	3,544	2,178	9,541	15,263
Nonpulping hardwood (Cypress, oak, hickory, ash, etc.)	6"- 8" [2]	1,115	262	869	2,246
	10"-12"	1,029	334	1,277	2,640
	14"-18"	418	403	1,443	2,264
	20" & over	139	256	1,859	2,254
	Subtotal	2,701	1,255	5,448	9,404
	Total	10,497	10,075	15,189	35,761

[1] Diameter measurements on worked-out pines were taken at 10 feet above the ground and represent the diameter of the part of the stem used above the discarded turpentine-butt section.

[2] Diameter measurements on all nonturpentine-pines and on all hardwoods were taken at 4½ feet above the ground since the whole merchantable stem is used.

Table 6 shows the cordwood volume on the composite acre by species groups and diameter classes. A composite acre is a theoretical acre arrived at by dividing the total number of cords of wood in each species group and diameter class by the total forest acreage.

Table 6 - Cordwood volume on the composite acre by species groups and diameter classes, Survey Unit #1, Georgia

Species groups	Diameter classes									
	6"-8"		10"-12"		14"-18"		20" & over		Total	
	Cords	% of total	Cords	% of total	Cords	% of total	Cords	% of total	Cords	% of total
Turpentine pine (Longleaf and slash)										
Round	.76	9.8	.32	4.1	.15	1.9	.04	.5	1.27	16.3
Working and resting	.30	3.9	.72	9.2	.33	4.3	.05	.6	1.40	18.0
Worked-out	.04	.5	.18	2.3	.10	1.3	.02	.3	.34	4.4
Nonturpentine pine (Loblolly, shortleaf, pond, sand and scrub)	.17	2.1	.35	4.5	.49	6.3	.24	3.1	1.25	16.0
Pulping hardwood (Gum, maple, bay, magnolia, etc.)	.54	6.9	.60	7.7	.63	8.1	.41	5.3	2.18	28.0
Nonpulping hardwood (Cypress, oak, hickory, ash, etc.)	.32	4.1	.38	4.9	.33	4.2	.32	4.1	1.35	17.3
Total	2.13	27.3	2.55	32.7	2.03	26.1	1.08	13.9	7.79	100.0

Growth

The calculation of the annual growth of the present timber stands in this unit has not been completed and the result of the Survey's findings in this respect will be shown in the statistical report for the Unit. This report will be published as soon as all field data have been assembled, computed and analyzed. It will be sent to those who express a desire to receive copies.

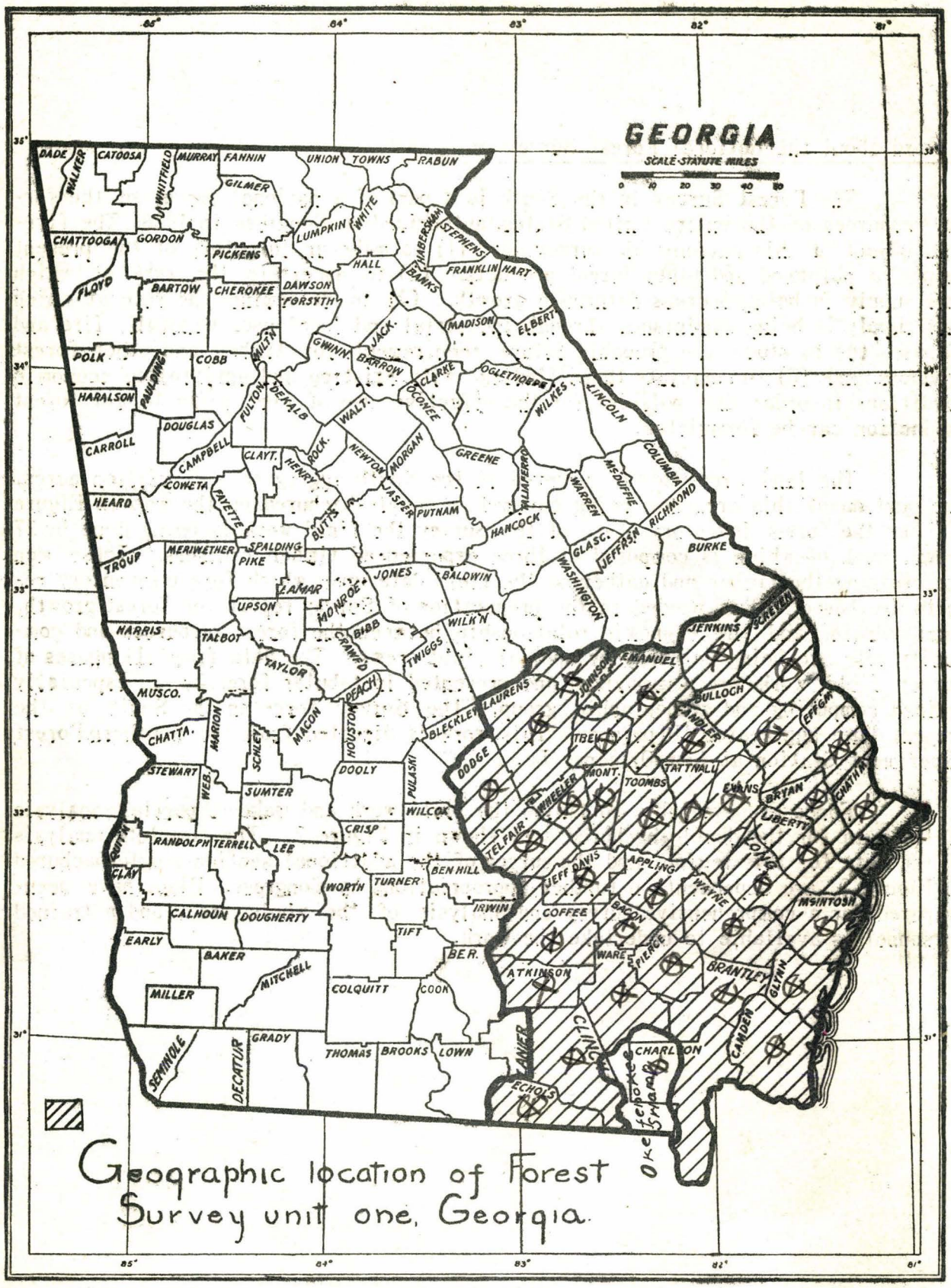
A word about the National Forest Survey

The Forest Survey in the South is a part of a national survey of the forest resources of the entire United States, authorized by Congress in 1928. The five-fold object of this nation-wide survey is: (1) to make an inventory of the present supply of pulpwood and other forest products, (2) to ascertain the rate at which this supply is being increased through growth, (3) to determine the rate at which this supply is being diminished through industrial and local use, windfall, fire and disease, (4) to study the probable future requirement for timber and other forest products, and (5) to correlate these findings with existing and anticipated economic conditions in order that policies for the effective use of land suitable for forest production can be formulated.

The land area to be surveyed in the South aggregates 321 million acres. The portion of this area now being covered is double-hachured on the map in Figure 2. For the forest inventory phase of the Survey the field work is being done by 27 crews, each of which is composed of three experienced timber cruisers. These men are cruising the timber and gathering the field data upon which forest inventory reports are based. Data needed in the preparation of Survey reports on forest growth, forest drain, and the economic relationship between the forest resources and community life are being gathered by special field crews. The data from all phases of Survey field work are summarized and presented in tabular form by an especially trained computing and stenographic group. The Survey force in the South at the present time aggregates 110 persons. This work is directed from the Southern Forest Experiment Station at New Orleans, La.

Funds are available to finish the field work and make a partial analysis of the data for the double-hachured area shown in Figure 2. The complete analysis of the data for this region, and the survey of the additional section single-hachured in Figure 2, are dependent on further appropriations by Congress. Plans have been prepared for a comprehensive survey and analysis of the whole area, and a trained personnel is available to undertake the work.

Figure 1.



Geographic location of Forest Survey unit one, Georgia.

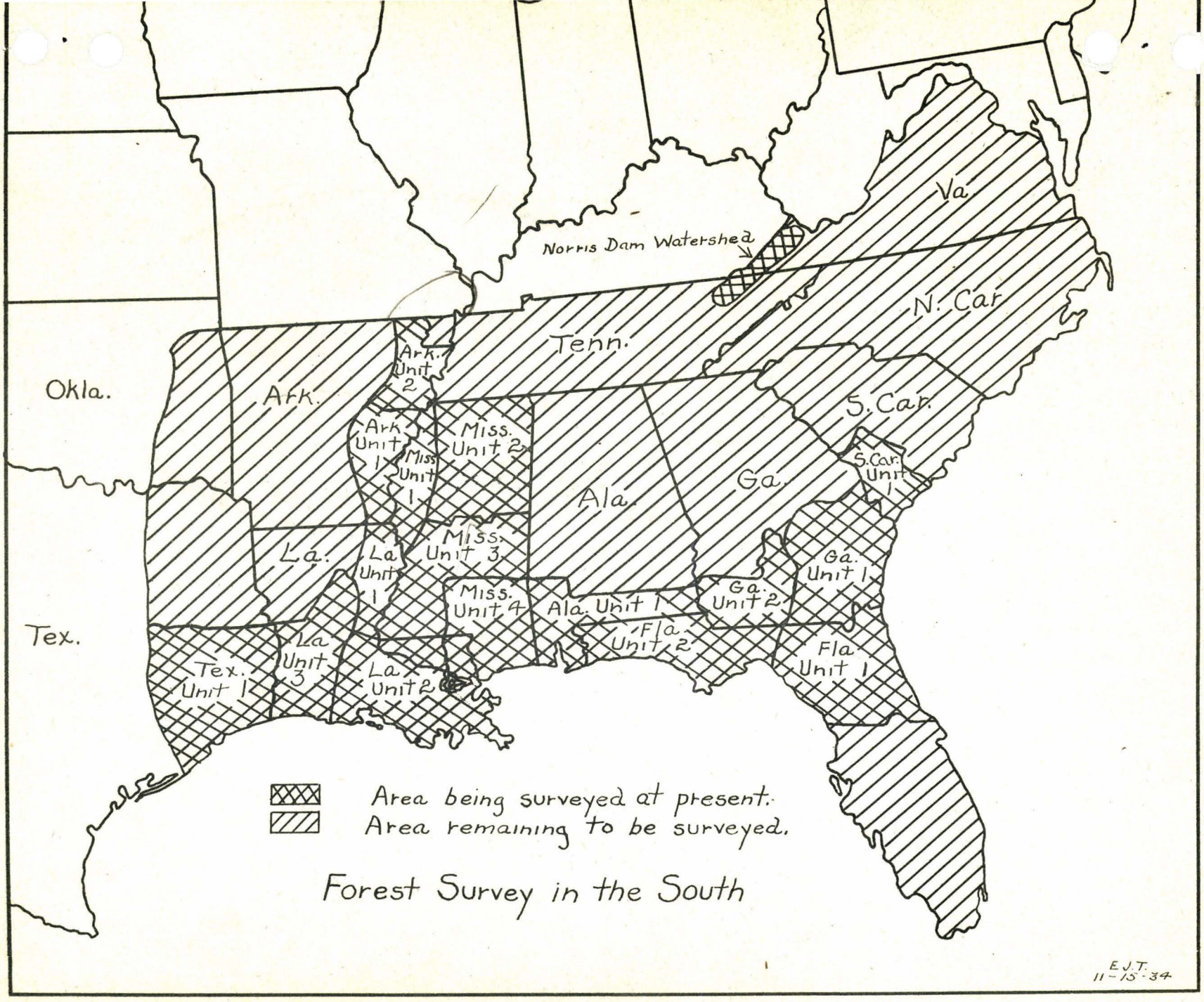

Norris Dam Watershed
Va
N. Car
Tenn.
Ark.
Okla.
Ark. Unit 2
Ark. Unit 1
Miss. Unit 2
Miss. Unit 1
Miss. Unit 3
Miss. Unit 4
La.
La Unit 1
La Unit 2
La Unit 3
Tex.
Tex. Unit 1
Ala.
Ala. Unit 1
Ga.
Ga. Unit 1
Ga. Unit 2
S. Car.
S. Car. Unit 1
Fla Unit 1
Fla Unit 2
Area being surveyed at present.
Area remaining to be surveyed.
Forest Survey in the South
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Figure 2.